

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

Eastern Plating

Maryland Technology Extension Service

Industrial Sleuthing Turns Up Product Solution for Eastern Plating

Client Profile:

Eastern Plating is a small, family-owned job shop specializing in electroplating and anodizing for various customers in the Mid-Atlantic region. Located in the Canton section of Baltimore, Maryland, the company presently employs 23 people.

Situation:

Eastern Plating (EP) has worked with the Maryland Technology Extension Service (MTES), a NIST MEP network affiliate, for many years. EP contacted MTES when it began having problems with its black anodizing service. When the company black anodized a component made from a 7075 aluminum alloy, a white powder appeared. The powder wasn't visible prior to anodizing, but appeared on the surface after anodizing; some parts in the production load had the white powder, and some didn't. The white powder violated EP's quality standards, and they asked MTES to find and correct the problem.

Solution:

MTES conducted an initial investigation into EP's problem and decided to bring in the University of Maryland's Center for Microanalysis (CFM) to perform tests, a metallurgical review, and evaluate the results of their analyses.

CFM obtained samples of the part, both anodized and un-anodized, and identified an irregular pattern of white powder on the pieces. Using a piece of carbon tape, CFM gathered samples of the particles for analysis. With sophisticated microprobe techniques, CFM conducted chemical analyses and micrographs at various points where the speckles were present. Meanwhile, other CFM employees combed industrial literature to locate historical data on this phenomenon.

Upon review of the initial results, EP decided to proceed with additional analysis in an attempt to determine the location of the particles relative to the anodization. CFM prepared a sample of an anodized part and analyzed it using an electron microscope. Results revealed the chemical properties of the particles, identified as silicon. The particles are embedded in the aluminum during the customer's sandblasting process and, because they do not absorb dye, stand out against the black aluminum. A minor mechanical process removes the silicon particles.

EP contacted its customer and explained the findings. The customer agreed to pay EP to pre-clean the parts before anodization. EP can once again guarantee the quality of its product.

Results:

- * Retained sales of \$20,000.
- * Retained 1 job that otherwise would have been lost..
- * Ensured product quality.

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* Improved customer satisfaction.

Testimonial:

"The Maryland Technology Extension Service has been a valuable resource for a small company like ours."

Michael Castor, General Manager